UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,878	04/05/2001	Stephen G. Batsell	06060002AA	3761

7590	02/24/2005

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EXAMINER
NGUYEN, STEVEN H D

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
	09/825,878	BATSELL ET AL.
Office Action Summary	Examiner	Art Unit	
	Steven HD Nguyen	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 April 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *4/5/01*

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
> sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claim 5 rejected under 35 U.S.C. 102(b) as being anticipated by Amouris (IEEE).

Amouris discloses a method of routing traffic packets through a mobile network

comprising a plurality of mobile nodes (Page 1386, Fig 1 discloses a plurality of mobile nodes)

comprising the steps of assigning each of a plurality of mobile nodes an identifier (ID) (Node X);

each of said nodes storing a list of said identifiers of neighboring nodes in a one-hop region to

create a one-hop neighbor list (Page 1366, Right col. every router has a set of neighbors one hop,

denoted N1); exchanging said one-hop neighbor list with one-hop neighbors; creating a two-

hop neighbor list from said exchanged one-hop neighbor lists (Page 1366, Right col. routers

learn the identity of their two hop neighbors, denoted N2, via link state packets issued by their

one hop neighbor); and selecting a subset of said one-hop neighbors, such that the subset can

directly compute a route to all two-hop neighbors when forwarding broadcast traffic (Page 1367,

right col. MR is to select a minimal subset M of MPRs from N1 so that their retransmission

cover N2).

3.   Claim 5 rejected under 35 U.S.C. 102(b) as being anticipated by Jacquet (IETF)

Jacquet discloses a method of routing traffic packets through a mobile network

comprising a plurality of mobile nodes comprising the steps of assigning each of a plurality of

mobile nodes an identifier (ID) (Page 5, line 18, IP address); each of said nodes storing a list of

said identifiers of neighboring nodes in a one-hop region to create a one-hop neighbor list (Pages

9-10, Sec 6.1.1, Page 11, sec 6.1.2, each node maintains a neighbor table of its one hop

neighbors); exchanging said one-hop neighbor list with one-hop neighbors; creating a two-hop

neighbor list from said exchanged one-hop neighbor lists (Pages 8-9, Sec 5 multipoint relay and

Page 11, each node establishes two hop neighbor by exchanging the one hop list); and selecting a

subset of said one-hop neighbors, such that the subset can directly compute a route to all two-hop

neighbors when forwarding broadcast traffic (Page 14, Sec 6.2 and Page 20, Sec 6.4).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6.   Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Amouris in view of Pearlman (IEEE).

Regarding claims 1-4 and 6, Amouris discloses a routing protocol for mobile networks

comprising a plurality of mobile nodes (Page 1368, Fig 1), comprising the steps of: assigning

each of a plurality of mobile nodes an identifier (ID) (Node X); each of said nodes storing a list

of said identifiers of neighboring nodes in a one-hop region to create a one-hop neighbor list;

exchanging said one-hop neighbor list with one-hop neighbors (Page 1366, Right col. every

router has a set of neighbors one hop, denoted N1); creating a two-hop neighbor list from said

exchanged one-hop neighbor lists; selecting a subset of said one-hop neighbors (Page 1366,

Right col. routers learn the identity of their two hop neighbors, denoted N2, via link state packets

issued by their one hop neighbor), such that the subset can directly compute a route to all two-

hop neighbors when forwarding broadcast traffic (Page 1367, right col. MR is to select a

minimal subset M of MPRs from N1 so that their retransmission cover N2). However, Amouris

fails to discloses when forwarding broadcast traffic to a destination node beyond said two-hop

neighbors of a source node; forwarding a search request packet to said one hop neighbors until

said destination node is present in said two-hop neighbor list; storing a reverse path tracking a

path of said request packet; forwarding a route return packet via said reverse path to said source

node to compute a path to said destination node.   In the same field of endeavor, Pearlman

discloses when forwarding broadcast traffic to a destination node beyond said two-hop neighbors

of a source node (Page 1398, Sec B, Para 3); forwarding a search request packet to said one hop

neighbors until said destination node is present in said two-hop neighbor list (Page 1398, Sec B,

Para 2-3); storing a reverse path tracking a path of said request packet; forwarding a route return

packet via said reverse path to said source node to compute a path to said destination node (Page 1398, Sec b, Para 5-6); when a node moves to a new neighborhood one of said one-hop neighbors will recognize a link failure and notify its one-hop neighbors to update their respective one-hop neighbor lists (Page 1400, Left col. para. 1 and right col. para. 3, link broken, the nodes will update its routing table); when a node monitors overheard packets for its own destination address to receive said overheard packets early (Hello Packet, Page 1400, right col., Para. 2).

Since, Amouris suggests a method for forwarding a packet to a node outside the zone of the source node which send the packet to the a node which is boundary of the destination by using zone routing. Therefore, it would have been obvious to one of ordinary skill in the at the time of invention was made to apply a method for performing a route discovery when a destination node is outside the zone of the source as disclosed by Pearlman into Amouris because flooding or broadcasting a packet is well known and expected in the art. The motivation would have been to prove an efficient way to routing a packet without the need for centralized control of a network.

7.   Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacquet in view of Pearlman.

Regarding claims 1-4 and 6, Jacquet discloses a routing protocol for mobile networks comprising a plurality of mobile nodes, comprising the steps of: assigning each of a plurality of mobile nodes an identifier (ID) (Page 5, line 18, IP address); each of said nodes storing a list of said identifiers of neighboring nodes in a one-hop region to create a one-hop neighbor list (Pages 9-10, Sec 6.1.1, Page 11, sec 6.1.2, each node maintains a neighbor table of its one hop neighbors); exchanging said one-hop neighbor list with one-hop neighbors; creating a two-hop

neighbor list from said exchanged one-hop neighbor lists (Pages 8-9, Sec 5 multipoint relay and

Page 11, each node establishes two hop neighbor by exchanging the one hop list); selecting a

subset of said one-hop neighbors, such that the subset can directly compute a route to all two-hop

neighbors when forwarding broadcast traffic (Page 14, Sec 6.2 and Page 20, Sec 6.4). However,

Amouris fails to discloses when forwarding broadcast traffic to a destination node beyond said

two-hop neighbors of a source node; forwarding a search request packet to said one hop

neighbors until said destination node is present in said two-hop neighbor list; storing a reverse

path tracking a path of said request packet; forwarding a route return packet via said reverse path

to said source node to compute a path to said destination node. In the same field of endeavor,

Pearlman discloses when forwarding broadcast traffic to a destination node beyond said two-hop

neighbors of a source node (Page 1398, Sec B, Para 3); forwarding a search request packet to

said one hop neighbors until said destination node is present in said two-hop neighbor list (Page

1398, Sec B, Para 2-3); storing a reverse path tracking a path of said request packet; forwarding

a route return packet via the reverse path to said source node to compute a path to the destination

node (Page 1398, Sec b, Para 5-6); when a node moves to a new neighborhood one of said one-

hop neighbors will recognize a link failure and notify its one-hop neighbors to update their

respective one-hop neighbor lists (Page 1400, Left col. para. 1 and right col. para. 3, link broken,

the nodes will update its routing table); when a node monitors overheard packets for its own

destination address to receive said overheard packets early (Hello Packet, Page 1400, right col.,

Para. 2).

     Since, Jacquet suggests the use of OSLR for using to route compute and maintenance.

Therefore, it would have been obvious to one of ordinary skill in the at the time of invention was

made to apply a method for performing a route discovery when a destination node is outside the

zone of the source as disclosed by Pearlman into Jacquet because Pearlman also suggests the use

of OLSR for performing a route discovery and maintenance and flooding or broadcasting a

packet is well known and expected in the art. The motivation would have been to prove an

efficient way to routing a packet without the need for centralized control of a network.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Haas (IETF) discloses a zone routing protocol in MANET.

Ahmed (USP 6816460) discloses a location based routing for MANET.

Haas (USP 6304556) discloses routing and mobility management protocol for MANET.

Larson (USP 6535498) disclose route updating in MANET.

Larson (USP 6751200) discloses route discovery based on piconet forming.
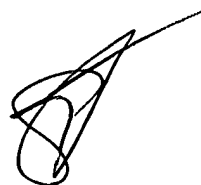
Souissi (US 2002/0142721) discloses a method and device for selecting a wireless

communication path.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159.

The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Huy D Vu can be reached on (571) 272-3155. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven HD Nguyen
Primary Examiner
Art Unit 2665
2/19/05